Amendments to the Claims:

1. (Currently amended) A method of synthesizing a repertoire of oligonucleotide tags of a predetermined length in the range of from 18 to 60 nucleotides, the method comprising the steps of:

(a) providing a repertoire of same-length oligonucleotide tag precursors in an amplicon, wherein each ~~the~~ oligonucleotide tag precursors ~~each comprising~~ comprises one or more words, and each ~~of the one or more~~ words ~~being~~ is selected from ~~the same~~ a minimally cross-hybridizing set, such that a duplex consisting of a word of the set and the complement of any other word of the set contains a number of mismatches that is either 1, 2 or 3 less than the length of the word;

(b) cleaving the amplicon at a word in each of the oligonucleotide tag precursors to form one or more ligatable ends on each oligonucleotide tag precursor;

(c) ligating one or more words to the one or more ligatable ends to elongate each of the oligonucleotide tag precursors;

(d) amplifying the elongated oligonucleotide tag precursors in the amplicon; and

(e) repeating steps (b) through (d) until a repertoire of oligonucleotide tags having the predetermined length is formed.

2. (Original) The method of claim 1 wherein said amplicon is a cloning vector.

3. (Original) The method of claim 2 wherein said step of cleaving includes cleaving said amplicon in a region adjacent to said word by a type IIs restriction endonuclease.

4. (Original) The method of claim 3 wherein said word has a length in the range of from three to fourteen nucleotides.

5. (Canceled)

6. (Currently amended) The method of claim 2 wherein said step of cleaving includes cleaving said amplicon ~~across said word by~~ at the upstream and downstream boundaries of a word, using a type IIs restriction endonuclease.

7. (Currently amended) The method of claim 2 wherein said word has a length of four nucleotides and wherein said oligonucleotide tag has a length in the range of from 18 to 40 nucleotides.

8-14. (Cancelled)

15. (Currently amended) A repertoire of cloning vectors for attaching oligonucleotide tags to polynucleotides, wherein each of the vectors comprises a double stranded element corresponding to an oligonucleotide tag of the form:

$$w_1(N)_{x1}w_2(N)_{x2} \ldots (N)_{xn-1}w_n$$

wherein

each of w_1 through w_n is a word consisting of an oligonucleotide having a length from three to fourteen nucleotides or basepairs and being selected from ~~the same~~ a minimally cross hybridizing set, wherein a word of the set and a complement of any other word of the set has a number of mismatches that is either 1, 2 or 3 less than the length of the word ~~at least two mismatches~~;

N is a nucleotide;

each of x_1 through x_{n-1} is an integer selected from the group consisting of 0, 1, and 2, provided that at least one of x_1 through x_{n-1} is 1 or 2; and

n is an integer in the range of from 4 to 10.

16. (Previously presented) The repertoire of claim 15 wherein said length of said word is from four to ten nucleotides or basepairs.